

Course Syllabus

1	Course title	Advanced Microbiology	
2	Course number	0304741	
3	Credit hours	3 credit hours	
	Contact hours (theory, practical)	Theory: 3 hrs weekly	
4	Prerequisites/corequisites	General Microbiology 0304341	
5	Program title	MSc in Biological Sciences	
6	Program code	04	
7	Awarding institution	The University of Jordan	
8	School	Faculty of Science	
9	Department	Department of Biological Sciences	
10	Course level		
11	Year of study and semester(s)	2023/2024, First Semester	
12	Other department(s) involved in teaching the course	None	
13	Main teaching language	English	
14	Delivery method	<input checked="" type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online	
15	Online platforms(s)	<input type="checkbox"/> Moodle <input type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....	
16	Issuing/Revision Date	05/10/2023	



مركز الاعتماد
وإضمان الجودة
ACCREDITATION & QUALITY ASSURANCE CENTER

17 Course Coordinator:

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18 Other instructors:

Name:

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Name:

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19 Course Description:

As stated in the approved study plan.

This course provides in-depth insight into the organization, structure and function of bacteria and archaeons; prokaryotic appendages and locomotion; microbial evolution and systematics; microbial nutrition and growth; transport across membrane; secretion systems; resting cells and microbial interactions.

20 Course aims and outcomes:



A- Aims:

To discuss many aspects of microbiology and deepen knowledge of microbiology & the classification and characteristics of microorganisms, in addition to microbial biology, growth, metabolism and genetics.

B- Course Learning Outcomes (CLOs):

Upon successful completion of this course students will be able to:

1. Understand the structure and function, physiology, and diversity of bacteria and Archaea
2. Have a basic understanding of the genetics and microbial evolution of prokaryotes
3. Explain the role of prokaryotes in our environment.

21. Topic Outline and Schedule:

Week	Lec- ture	Topic	Intended Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Plat- form	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1-4		In-depth insight into the organization, structure and function of bacteria.		Face to Face			Exams Discussions	See recommend- ed books below
5		Archaea: Cell morphology. Cell organization and structures.		Face to Face			Exams Discussions	See recommend- ed books below

6	Prokaryotic locomotion: Flagellar movement. Axial filaments . Movement of flagella-lacking prokaryotes.		Face to Face				Exams Discussions	See recommend- ed books below
7	Microbial evolution: Phylogenetic trees. Analytical methods for evolutionary analysis.		Face to Face				Exams Discussions	See recommend- ed books below
8	Microbial systematics: Methods for phenotypic and genotypic analyses.		Face to Face				Exams Discussions	See recommend- ed books below
9	Microbial nutrition: Nutritional types (diversity) of microorganisms Nutrient uptake (Membrane		Face to Face				Exams Discussions	See recommend- ed books below

		transport).						
10, 11		- Bacterial genome replication and gene expression: DNA structure DNA replication in bacteria The structure of genes Transcription The genetic code Translation Protein maturation, translocation and secretion						

Time remaining will be dedicated to student presentations.

SUGGESTED TOPICS for the PRESENTATION and the TERM PAPER

Topics may focus on prokaryotic motility and diversity, nutrition and growth, metabolism and physiology. Other subjects related to cellular microbiology and infection biology (pathogenesis and virulence factors) may also serve as interesting material for presentations and reviews. Topics of presentations that will shed some light on modern scientific experimental approaches should have the highest priority. Titles have to be decided after discussion with the instructor before the end of the first month of the semester.



22 Evaluation Methods:

Opportunities to demonstrate achievement of the CLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Presentations/Term papers	30	Selected topics		Last weeks	In-class
Midterm theory exam	30			7	In-class exam
Final theory exam	40	All topics		16	In-class exam

23 Course Requirements

(e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):

Overhead projectors

Data show projectors

24 Course Policies:

A- Attendance policies:

Absence from lectures should not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course.

B- Absences from exams and submitting assignments on time:

You should talk to your instructor as soon as possible if you miss an exam. All such cases will be dealt with according to the rules outlined in your student handbook.

C- Health and safety procedures:

Lab coat must be worn during the entire laboratory sessions. Gloves must also be worn in certain occasions.

Masks must be worn during the whole period of the lab session. In addition, physical distancing must be taken in consideration. Hands must be properly and thoroughly washed.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

All violations pertaining to cheating, plagiarism, misbehaviour will be dealt with in accordance to the rules



outlined in your student handbook.

E- Grading policy:

All exams are made up of the following question forms: multiple choice questions, True or False questions, matching questions, essay questions, "fill in the blank" questions.

F- Available university services that support achievement in the course:

25 References:

A- Required book(s), assigned reading and audio-visuals:

COURSE BOOK and references:

1. Bacterial Physiology and Metabolism. 2008. B. H. Kim and G. M. Gadd. Cambridge University Press, Cambridge, UK.
2. Brock Biology of Microorganisms. 2012. M. Madigan, J. Martinko, D. Stahl and D. Clark. 13th Edition. Pearson Publishers, San Francisco, USA.
3. Microbiology: An Introduction. 2013. G. J. Tortora, B. R. Funke and C. L. Case. 11th Edition. Pearson Publishers., San Francisco, USA.
4. Microbiology: A System Approach. 2009. M. K. Cowan and K. P. Talaro. 2nd Edition. McGraw-Hill Publishers, New York, USA.
5. Prescott's Microbiology. 2019. J. M. Willey, K. M. Sandman and D. H. Wood. 11th Edition. McGraw-Hill Publishers, New York, USA.

B- Recommended books, materials, and media:



26 Additional information:

Development of ILOs is promoted through the following teaching and learning methods:

1. Lecturing and discussions throughout the semester
2. Exams
3. PowerPoint presentation and movies
4. Preparing term papers
5. Presentations of scientific research
6. Office hours

Name of Course Coordinator: Prof. Hesham M. Al-Younes	Signature: -----
Head of Curriculum Committee/Department:	Signature: -----
Head of Department:	Signature: -----
Head of Curriculum Committee/Faculty:	Signature: -----
Dean:	Signature: -----